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ABSTRACT

A study examined the effect of cooperative learning on the reading comprehension of 16 second-grade students. A modified Cooperative Integrated Reading and Composition (CIRC) program was used with the experimental group over a 20-week period. A control group of 17 students was taught to read using traditional whole-group instruction with a subgroup for students needing extra help. Both groups took the SRA (Science Research Associates) Reading Achievement Test. Results indicated that there was no significant difference between the scores of the experimental and control groups, but the experimental group demonstrated a better than anticipated improvement in reading comprehension. (Three tables of data are included; 28 references and an appendix of comparative score data are attached.) (RS)

THE EFFECT OF COOPERATIVE LEARNING ON COMPREHENSION

An analysis of the effect of a modified CIRC instructional approach and cooperative learning partnerships on reading comprehension.

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Abstract

This project studied the effect of cooperative learning on the reading comprehension of sixteen second grade students. A modified CIRC program was used with the experimental group over a twenty week period. As hypothesized, an analysis of the results revealed no significant difference between control and experimental sample results. However, the experimental group demonstrated a better than anticipated improvement in reading comprehension.

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The primary emphasis of elementary instruction is the mastery of reading, most importantly, of reading comprehension. However, when Durkin studied comprehension instruction in middle- and upper-grade classrooms, she determined that "...almost no comprehension instruction was found. The attention that did go to comprehension focused on assessment, which was carried on through teacher questions." (Durkin, 1978-79) Although comprehension was the objective, little was being done to teach it.

Recently, authorities espousing the holistic view of reading have portrayed reading as a total language process requiring prediction and inferential thinking for comprehension. Aulls states, "...reading should be viewed by both teachers and children as an active, purposeful, and meaning-centered event." (Aulls, 1982) This increased interest in student comprehension has led to more direct comprehension instruction and a more intense concentration on structured reading techniques, critical reading, and metacognition by teachers and to self monitoring by students.

However, teacher adjustment of the reading skills taught during reading and content area instruction only addresses half of the problem. Reluctant readers of varying abilities continue to read assorted types of texts mechanically and mindlessly and achieve only a superficial understanding of the presented material. The educational challenge, then, becomes one of altering student reading from a word-by-word dalliance with the text to immersion in it.

In a traditional classroom during reading instruction, student time is usually divided between the homogeneous reading group and independent practice. Not only has research identified negative consequences of homogeneous grouping for less able readers (Esposito, 1973; Kulik and Kulik, 1982), but it has also cast doubt on the effectiveness of student independent work, completed while the teacher is involved with other reading groups. (Beck, McKeown, Mc Caslin, & Burkes, 1979) These practice activities are only effective for

students who understand the concepts, but need more practice for total mastery. They are unproductive both for students whose lack of understanding will prevent them from completing the activity accurately and for students who have already mastered the concept, whose time could be better spent doing something else. If this conventional approach is not successful, the question becomes what changes in classroom reading instruction can be made which will effectively produce active readers.

Of the various ways to develop capable, critical readers who actively participate and interact with their reading material, cooperative learning seems one of the more promising possibilities. Johnson suggests that pupil interaction is the most precious resource a teacher has available in the classroom, and yet the most overlooked. (Johnson, 1981) Cooperative learning situations can provide opportunities for active student participation and meaningful practice at times when traditional classroom practice would focus on less challenging, independent activities of questionable educational merit.

In the early 1980's, based on a growing body of research by Slavin, DeVries, and others, the Office of Educational Research and Improvement funded two field experiments in cooperative learning at the Center for Research on Elementary and Middle Schools in Baltimore, Maryland. Prior to this study cooperative learning had been shown as an effective learning technique in social studies, science, and mathematics, but its use with reading and writing instruction had been ignored. This program, Cooperative Integrated Reading and Composition, CIRC, attempted to improve reading and composition instruction by using cooperative teams. The teams in this experimental study were composed of student dyads and triads who read vocabulary words, basal stories, and comprehension questions together. Partners were also responsible for creating sentences for the reading vocabulary, discussing answers for comprehension questions, and proofreading each others' writing.

Although the two experiments which varied in length had differing results, both

> "... demonstrate(d) that standardized measures of such skills as reading comprehension and reading vocabulary can be affected by treatments that simultaneously address student motivation, classroom management, curriculum, and metacognitive activities. The studies also show(ed) that teachers can effectively implement cooperative learning processes within a multifaceted reading and writing program in elementary schools." (Stevens, et al., 1987)

The CIRC studies focused on the reading and writing improvement of third and fourth grade students. Additional research is necessary at varying grade levels and in differing conditions to explore whether a modified CIRC cooperative learning program will result in improved comprehension.

Hypothesis

To add to the information about the value of this important technique, a study of the effects of CIRC on second grade comprehension was established. It was hypothesized that there would be no significant difference in comprehension between second grade students who have practiced reading in cooperative learning groups and those who have practiced independently.

Procedures

A control sample and an experimental sample were established to study the effect of cooperative learning on comprehension. Each sample was comprised of the heterogeneous, second grade student population randomly assigned to the designated teacher. The control sample consisted of 17 students assigned to the teacher in 1990-1991, and the experimental group was comprised of 16 students placed with the same teacher for the 1991-1992 school year. All the children in both samples had attended the school the previous year and, therefore, had taken the *SRA Achievement Test* during May of their first grade year. Additionally, at the same time, the educational abilities of both groups were measured. The performance of each pupil on the reading comprehension section of this achievement test served as a pretest for both samples.

Both the control and experimental samples were taught to read using the Silver Burdett second grade reader, *Garden Gates.* The control sample was taught using a traditional approach, involving whole group instruction with a subgroup for readers needing extra support. Students periodically read together or to the teacher, but otherwise reading was done silently. Comprehension and skill practice consisted of whole group instruction on a skill, oral practice with the entire class, and independent practice in workbooks or in writing activities.

The experimental sample was also instructed using whole class instruction. However, on a daily basis students additionally practiced the sight vocabulary and oral reading of each story with their partners. Weaker readers, for whom the text was difficult, regularly read parts of each story to the teacher individually, as well as to their partners. Although comprehension lessons, skill presentations, and skill practice remained the same as for the control sample, the experimental sample practiced comprehension cooperatively using CIRC materials.

Comprehension questions were read and discussed by reading partners, answers were practiced orally before they were written independently, and predictions about future story events were debated. Additionally, answers were proofread by partners to ensure clarity of expression. Sporadically team points were awarded based on group achievement. Student monitoring of their partner's work was also made a regular part of the spelling program and an occasional part of the math program.

The *SRA Reading Comprehension Test* was readministered to both sample groups as the posttest. The control sample had routinely taken the *SRA Achievement Test* in May of second grade. A school district change in achievement tests allowed for the administration of the SRA reading comprehension section to the experimental sample in January, as required by the constraints of this study.

Results

To ensure the equality of the two sample groups at the onset of the study, the mean, standard deviation, and t of the cognitive ability and the reading comprehension pretest scores of both samples were calculated. As shown on table one, statistical tests to determine the

Table One

Mean, Standard Deviation, and t of the Cognitive Abilities of the Control and Experimental Samples

Samples	Mean	Standard Deviation	t Statistic
Control	109.47	6.50	-0.70 *ns*
Experimental	112.06	13.68	

DF 31

significance of the difference between the cognitive ability scores of the two samples produced a t of -.70.

The significance of the difference between the sample groups on the reading comprehension pretest was also statistically compared and resulted in a t of -1.00, as illustrated by table two. Although the

Table Two

Mean, Standard Deviation and t of
the Pretest Reading Comprehension Scores of
the Control and Experimental Samples

Samples	Mean	Standard Deviation	t Statistic
Control	2.56	1.23	-1.00 *ns*
Experimental	3.01	1.34	

DF 31

experimental sample shares a .45 greater grade equivalent score at the outset of the study, the difference was not statistatistically significant.

Twenty weeks after the inception of this study the Reading Comprehension section of the *SRA Achievement Test* was administered to the students in the experimental sample. As illustrated in table three, the mean, standard deviation, and t of the posttest reading comprehension were measured and resulted in a t of -1.63, which is also less than required to achieve significance. However, the mean gain of .83 grade equivalents seems large for such a short period of time. Moreover, it compares with a gain of .8 on the part of the control sample during the same period, a virtual dead heat.

Table Three

Mean, Standard Deviation and t of
the Posttest Reading Comprehension Scores of
the Control and Experimental Samples

Samples	Mean	Standard Deviation	t Statistic
Control	3.36	1.29	-1.63 *ns*
Experimental	4.19	1.63	

DF 31

Thus, the hypothesis was confirmed that there was no significant difference in comprehension between second grade students who practiced reading in cooperative learning groups and those who practiced independently.

Conclusions and Implications

While this study revealed no significant improvement in the reading comprehension scores of students who used the modified CIRC program to practice their comprehension, the posttest reading scores did indicate greater than expected improvement for the experimental group. In fact, although the t statistic comparing the cognitive abilities was -.70 and the t statistic comparing the reading comprehension pretests was -1.00, the posttest reading comprehension test t score was -1.63, which while not reaching a 1.96 level of significant difference, is suggestive of an effect which could be expanded on over time.

This fact, coupled with an uncontrollable limitation of only three

and one half months between pretest and posttest administration dates, suggests that this cooperative learning approach might produce statistically significant improvement in the reading comprehension of second grade students in a more extended study. The improvement in posttest comprehension scores seems to indicate that this approach produces readers who are at least as competent in comprehension as their classmates who were taught using a traditional approach.

This study, although restricted by small sample size, brevity of testing device, and disparity of posttest administration date, suggests that further research in using cooperative learning methods in the comprehension instruction of second grade students would be valuable.

THE EFFECT OF COOPERATIVE LEARNING ON COMPREHENSION: RELATED RESEARCH

Substantial research on comprehension improvement has been conducted over the years involving cooperative student activities of varying types. In 1900 Dewey became interested in group investigations and in the resulting increased student interest. Later in 1949 Deutsch determined that cooperative learning situations, in which individuals can only accomplish their goal if their teammates achieve theirs, led to better interpersonal relationships than competitive situations in which individuals benefit from activities that help them attain their own objectives, and which deter their competitors from reaching theirs. Coleman in 1959 suggested the replacement of the traditional independent, competitive classroom with competitive groups which cooperate internally. Then in the early 1970's interest again turned to cooperative learning and has continued to the present.

Learning situations essentially can be broken into three types. In competitive situations the individual attempts to achieve his goal and to keep competitors from reaching theirs. In an individualistic learning situation the individual seeks to reach her own goal, but her success or failure is not interrelated to the success or failure of others. In a cooperative learning situation an individual reaches his objective only if other group members also reach theirs.

Researchers have attempted to determine which incentive structure produces the best results in cooperative learning situations. In 1963 Miller and Hamblin studied cooperative incentive structures by which all group members are rewarded based on the group's performance, competitive incentive structures by which groups of individuals are rewarded based on individual performances within the group, and individualistic incentive structure by which students are rewarded on the basis of their own performance. The findings indicated that independent tasks were best rewarded using competitive or individualistic incentive structures, but interdependent tasks were better rewarded using cooperative incentive structures.

Cooperative learning, essentially, involves students working in small groups who interact with each other and study cooperatively to help each other learn. However, cooperative learning has also been seen by some as a technique to improve relations between different racial, ethnic, and ability groups. There are three major types of cooperative team methods: peer-tutoring, group investigation, and learning together.

Teams-Games-Tournaments (DeVries & Edwards, 1973) is a peer-tutoring method, in which the teacher assigns students to four or five member heterogeneous teams, which remain constant for six to ten weeks. The goal of the team is to prepare its members for the weekly tournament by rehearsing the material which is to be mastered. Students are also assigned to a tournament table with three students from other teams whose academic achievement is comparable. During the forty minute weekly tournament students compete at their table by answering short questions. The competitors are awarded points based on their performance and team scores are calculated by totalling individual points. Team achievements are publicized weekly in a class newspaper. The results of ten TGT field experiments were summarized by DeVries and Slavin (DeVries & Slavin, 1978). Seven experiments with third graders and seventh through twelfth graders yielded significant results in math, language arts, and reading. Three studies involving the social studies curriculum failed to produce significant results. These experiments were controlled for different variables and reward systems. However, the presence of a reward system, not peer-tutoring, appeared to be the factor most directly correlated with higher achievement, leading Sharan to conclude, "it appears that, with respect to promoting achievement, the peer-tutoring component of TGT was not critical." (Sharan, 1980)

Another peer-tutoring method is Student-Teams and Academic Diversity (Slavin, 1977). This technique, which eliminates the games

and tournaments, concentrates on reviewing teacher taught material with peer assistance. The teacher in his own records assigns students to one of several achievement divisions based on past academic performance. Student weekly test scores are compared with those of other students in his division. Instruction follows a highly structured schedule requiring a forty minute lecture/teacher-pupil discussion, a forty minute peer tutoring period in which written assignments are completed, and a twenty minute quiz. Slavin reported the results of three nine week studies of fourth through eighth grade students from both rural and urban schools involving the language arts curriculum. In one study 252 fourth and fifth grade pupils were compared with 84 other pupils in a control group. Four different experimental group treatments were used: a team reward was given for completion of a group task on which team members were allowed to work together, a team reward was given for completion of an individual task on which team members were not allowed to assist one another, an individual reward was given for completion of a group task on which individuals could choose with whom they would work, and an individual reward was given for completion of an individual task. The control group in all studies was taught in the traditional method. Although the experimental groups achieved better than the control group and the reward system was highly correlated with achievement, as expected, researchers were surprised to find that the group task did not seem to correlate more highly with success.

In a study of 205 seventh grade English pupils student scores were compared with scores of peers of equal ability, team scores were compared within the class, and team rewards were given (Slavin, 1978). Both the experimental and control group improved more on standard achievement tests than would be expected. Slavin concluded that the highly structured schedule of teaching and testing was responsible for this.

Jigsaw is another peer-tutoring cooperative learning approach. Prior to the formation of student teams, the entire class is trained in communication skills and tutoring techniques. Students are then assigned to heterogeneous teams and given a topic to learn. The task is divided among team members, and each member is responsible for learning one part and for teaching this to the rest of his team. Secondary student groups, composed of individuals from other teams who are responsible for learning the same material, are formed to facilitate mastery by discussing and analyzing it. Members return to their original teams to teach their part of the material, on which they are now expert, and to learn all the rest of the material for the test. This procedure was studied to determine whether the academic learning of 242 interracially mixed fifth and sixth grade students would improve when this technique was used 45 minutes a day for two weeks. A thirty-seven item true-false, multiple choice, matching device was used to test academic achievement. The study found a significant improvement for minority students, but no difference for white students. (Lucker, Rosenfield, Sikes, and Aronson, 1976) Several other studies of this procedure tested for a change in attitude toward school, self-esteem, and cooperative skills, and results were mixed.

The second major category of cooperative learning technique involves group investigation models. This approach emphasizes the collection of data by students, group discussion and analysis of the material, and the synthesizing of the various bits of information into a group product of some sort. The use of this technique usually requires the grouping children into task groups to study a particular topic, the cooperative division of the required responsibilities among group members, the use of a variety of activities to allow for the full participation of all group members, student analysis, evaluation, and summarization of accumulated data, some sort of class presentation, and individual or group evaluation. According to McClintock &

Sonquist, "Higher level achievement and cognition were found to be associated with peer-interactional learning." (McClintock & Sonquist, 1976)

Wheeler and Ryan studied how competitive and cooperative classroom environments impacted on student attitudes and achievement. The eighteen day fifth and sixth grade social studies project divided eighty-eight students among three groups: cooperative, competitive, and control. Although different content and non-inquiry methods were used with the control group , both the competitive and cooperative groups were taught the same material using inquiry type workbook activities. Cooperative groups assigned each member a different job; coordinator, analyzer, and recorder. The group which submitted the best workbook received a poster as an award. The competitive group worked individually in the same inquiry type workbook as the cooperative group, and at the end of each five lessons the students responsible for the six best workbooks received a poster. Both the cooperative and competitive groups performed better than the control group, but there was no significant difference between these two groups in achievement. The only significant difference between them was the more positive attitude about social studies reflected by the cooperative group. (Wheeler and Ryan, 1973)

The third major type of cooperative learning situation is one in which students learn together. Characteristically, after the lesson has been taught by the teacher, students assemble in small groups and cooperate on a written task. In 1974 Johnson divided 120 math students into a control group in which students studied geometry and measurement on their own without interacting with their classmates, receiving clarification only from the teacher. The experimental group studied advanced set theory and advanced number theory in a heterogeneous learning group in which students worked together to complete one assignment per group and for which the whole group was rewarded. Teacher observations of group interaction were logged

and interviews were conducted to assess attitudes. Achievement was evaluated with an individual test taken in both groups. The cooperative group subsequently took a test cooperatively with their group. Cooperative group member attitudes about working in a heterogeneous group were more positive than those of students who had worked individually. Pupils in the experimental group were more accurate in their daily work and worked more rapidly. Additionally, cooperative learning became more effective as the level of difficulty of the material increased. They concluded, "...when educators structure learning cooperatively, they gain a great deal in terms of positive student attitudes and student socialization, without losing anything (and usually gaining) in achievement." (Johnson, 1974)

Another study by Johnson et al. studied 30 fifth-graders to determine whether a cooperative learning structure would encourage the development of altruism and would positively affect student behavior and achievement in the classroom. As in the previous study, students were divided into a control group, in which individuals learned independently, and an experimental group, in which students learned together. Observations and interviews indicated a higher degree of altruism and more positive attitudes toward learning on the part of the cooperative group students. Additionally, the researchers concluded,

> "The results of this study corroborate the previous research, indicating that higher daily achievement results from cooperative learning, but no differences are found between cooperative and individualized conditions on a review test given individually. When the review test is taken cooperatively by the students in the cooperative condition and individualistically by the students in the individualized condition, the cooperative groups do better." (Johnson, 1976)

In 1981 Johnson, Maruyama, Johnson, and Nelson conducted a study to determine whether cooperative learning promotes higher achievement than competition, whether cooperative learning is more successful than individual assignments, and whether intergroup competition is necessary for cooperative learning to be effective. Three methods of meta-analysis, the voting method, the effect-size method, and the z-score method, were used to analyze the data. Every North American study available to the researchers was examined. Results of this study indicated no difference in achievement between cooperative groups without intergroup competition and cooperative groups with intergroup competition. Cooperation seems to produce higher achievement than competitive and individualistic efforts. Cooperative learning situations with intergroup competition seems slightly more successful than interpersonal competition. Finally, no significant difference was found between competition and individualistic effort.

In 1987 Stevens, Madden, Slavin, and Farnish of the Center for Research on Elementary and Middle Schools conducted two field studies to determine whether the CIRC program, a cooperative integrated reading and composition program, would produce significantly better reading and language achievement of third- and fourth-grade students. Ten control classrooms received instruction in a traditional manner, while eleven experimental classrooms, matched by Achievement Test Total Reading scores, received instruction using CIRC methods. The Total Reading and Language scale scores from the *California Achievement Tests* were administered as both the pretest and the posttest. The first study, which was implemented over a twelve week period, found statistically significant differences favoring the experimental group on reading comprehension, reading vocabulary, language expression, and spelling.

A second field experiment was essentially a replication of the first study, but continued over a 24 weeks period and involved a more

ethnically diverse population of students. Additionally, an informal reading inventory was added for further evaluation, and the amount of writing in the language component was increased. Teachers of the experimental classes were taught specific techniques for teaching writing skills. Student writing was assessed using an analytic approach similar to that used in the first study. The *California Achievement Test* again served as both the pretest and posttest using matched pairs of students compiled from the control and experimental groups. The study results found better performance in decoding and comprehension by the experimental group vocabulary, language mechanics, and language expression favored the CIRC students, but to less than a statistically significant degree. The researchers conclude that cooperative learning can be effectively used to teach reading and language arts.

At the same time the data for the above studies was also to evaluate the use of the CIRC program with learning disabled and remedial reading students. (Madden, 1986) In the first study, which was twelve weeks in duration, the progress of twenty-two learning disabled and fifty-one remedial reading students, who were removed from part of the reading period for their remedial and special education instruction which also employed CIRC techniques, was examined. Although improvement in spelling and reading favored the experimental group, the change was not statistically significant. In the second study special education and remedial reading students were present for the entire reading period and received their remedial instruction at other times during the day. The results of this study indicated substantial progress in reading vocabulary and comprehension, but statistically it was only marginally significant. Madden concluded that improvement reflected the effectiveness of heterogeneous groups and that the paired reading component was significant in improving decoding skills and fluency for all levels of readers. However, she goes on to state, "The difficulty in interpreting

studies of a complex program is that any number of the components of the CIRC program could account for the changes." (Madden, 1986)

An appreciable number of research studies have concentrated on paired, repeated reading as a way to expand the amount of monitored reading time in the classroom and to achieve automaticity with particular selections. Koskinen and Blum studied the importance of repeated readings in the development of fluency. Students were paired with a partner from their own reading group. Each would read a short passage three times with their partner helping on troublesome words, as needed. The listening partner would give the reader a positively oriented evaluation, and then the partners would switch roles. The researchers found improved fluency and word recognition, and some progress in comprehension.

In 1990 Frost reported on a program conducted in an ethnically mixed, lower socioeconomic, neighborhood school, which targeted improved comprehension of 14 third grade students through repeated, paired readings. Prior to the start of the program the teacher modeled giving feedback and listening which the students then practiced. They learned how to mark their partner's improvement on a listening sheet and how to select appropriate passages to practice. A *Quantitative Reading Inventory* (QRI) was administered as both a pretest and posttest to assess student reading rate, accuracy, and comprehension. Randomly assigned student pairs, which were changed weekly, repeatedly read student selected passages from the instructional materials. These passages were read silently and then orally three times to their reading partners. Listening partners then identified areas on which their partner had improved, before switching roles. Once partners had become accustomed to this procedure, comprehension tasks were added; students were asked to verify or dispute statements about the text and agree on an answer. The QRI, readministered 14 weeks later, showed a 42% improvement in answering literal questions, an 80 % improvement in main idea

comprehension, and a 60 % improvement in the ability to draw conclusions. Additionally, pupil reading rate increased by 15% and word recognition errors decreased by 50%. A majority of the students also reflected a more positive attitude toward reading and more self confidence in their ability. Frost concluded that more attention should be focused on increasing amount of time students read and in developing strategic skills for critical thinking.

In 1990 Eldredge reported on a study to determine if the use of group-assisted reading techniques would increase the reading comprehension and vocabulary scores of poor third-grade readers. The study, conducted over an eight week period, divided thirty-six poor readers evenly into a control and experimental group. The control group received regular classroom reading instruction from their own teachers and read literature silently for fifteen minutes a day. A teacher listened to students read several times a week, and students made weekly oral reports on what they read. The experimental group received regular classroom reading instruction from their own teacher and read eight paperback books with the teacher and a high achieving reading buddy. The project teacher modeled expressive oral reading, and the students read each story several times until they could read it expressively without teacher assistance. Books, which had to be fluently readable by the buddy reader, for the assisted- reading group were selected on the basis of student interest. The *Gates-MacGinitie Reading Test,* used as a pre- and posttest measure, reflected greater achievement in all tested areas by the assisted-reading group. The researcher concluded that students learned more with their buddy reader than they did when working by themselves.

Although research results are somewhat ambivalent, there are indications that cooperative learning, when combined with an appropriate reward system, will result in greater student achievement. Additionally, particular components of the cooperative reading programs, such as paired reading, seem clearly to produce better

results than traditional methods.

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APPENDIX

Scores of Control and Experimental Samples

Control Sample

Student	Sex	Score	Pretest	Posttest
1	M	109	2.7	3.9
2	M	112	4.6	4.7
3	M	112	1.5	2.9
4	M	95	1.3	0.6
5	M	101	0.7	2.6
6	M	104	4.6	3.3
7	M	115	3.3	3.3
8	M	112	2.4	3.3
9	M	122	2.1	2.9
10	F	109	3.3	3.3
11	F	118	2.7	3.3
12	F	101	2.5	3.3
13	F	109	2.5	3.9
14	F	112	2.1	4.7
15	F	109	4.6	5.7
16	F	112	2	4.7
17	F	109	0.7	0.8
Mean		109.47	2.55	3.36
Std Dev		6.31	1.19	1.28

Experimental Sample

Student	Sex	Score	Pretest	Posttest
1	M	109	2.5	3.9
2	M	126	0.7	3.9
3	M	86	2.3	2.7
4	M	131	4.6	7.2
5	M	131	2.5	2.7
6	F	112	2.7	5.7
7	F	109	4.6	4.7
8	F	115	3.3	3.3
9	F	98	2.7	4.7
10	F	122	3.3	5.7
11	F	109	4.6	5.7
12	F	126	2.7	5.7
13	F	104	2	2.4
14	F	122	4.6	4.7
15	F	101	4.6	3.3
16	F	92	0.5	0.8
Mean		112.06	3.01	4.19
Std Dev		13.26	1.59	1.58